REMARKS

Printing errors have been corrected in this amendment. Specifically, the issues raised by the Examiner on page 3 of the specification have been addressed, and a double entry of identical text on page 6 has been deleted, and further an explanatory line on page 8 of the application has been added. None of the added or deleted text provides information that would be deemed material to understanding the invention as will be readily understood by contrasting the equations presented in the specification, as is discussed in detail below.

The references identified on page 2 of the application simply demonstrate that inventory control methodologies, and particularly those that relate to materials requirement planning are well known in the industry. As will be apparent from the specification, none of the prior art discussed in the application shows or contemplates using financial portfolio problem analysis to provide for inventory control management.

Claims 1-12 have been rejected as being directed to non-statutory subject matter under 35 U.S.C. 101. This rejection is traversed.

At the outset, it will be appreciated by the Examiner that inventory control systems and methods have significant value in a wide variety of industries. This invention provides a methodology and system for determining optimal values for inventory investment. Therefore, they method provides a useful, tangible result that falls within the ambit of 35 U.S.C. 101. With respect to claims 10-12, the claimed system provides more than simply a number producing machine as suggested by the Examiner. Quite the contrary, the claimed system includes a server which converts an inventory problem to a financial portfolio problem, and ultimately allows selecting an inventory investment with a best value. Furthermore, claims 10-12 are directed to a system which allows multiparty access, and, as is shown in Figure 1 of the application, this implementation employs multiple computers. In accordance with the Examiner's suggestions, claim 1 has now been amended to require that the

claimed method be performed using a computer or computer system. As such, each of claims 1-12 should satisfy 35 U.S.C. 101.

All claims have been rejected as being anticipated by the admitted prior art under 35 U.S.C. 102. This rejection is respectfully traversed.

The invention is directed to a method for calculating optimal inventory quantities which employs financial portfolio management tools. As explained on pages 1 and 2 of the application, prior inventory management techniques generally fall into the categories of deterministic demand or stochastic demand. In a more advanced material requirements planning inventory control system, future demand is assumed to be a known quantity. As explained on page 5, line 19 to page 6, line 9, typical inventory management techniques involve calculating a supply quantity vector Q that minimizes the expected cost of backlogging the inventory. Variations on this theme are presented at the top of page 6 and are focused on minimizing the cost of inventory to satisfy demand with no less than a certain probability for each product, achieving a certain average customer service level for all products, and maximizing average customer service with a budget constraint.

In contrast, the invention contemplates using "put" and "call" options in calculating variables for inventory control management. The "put" and "call" options are random variables and correspond to a right to purchase or right to sell an asset a pre-specified price within a pre-specified time period. There are no penalties for not exercising the options. Contrasting equation (2) on page 5 of the application with equation (3) on page 7 of the application, it can be seen that in the present invention, (defined in equation (3)) a shortage quantity corresponding to a "call" option and an inventory quantity corresponding to a "put" option are considered, and that the expected cost of holding a supply (as set forth in equation (1)) becomes a "financial problem" or a "portfolio optimization problem" wherein the expected value of a portfolio of put and call options is maximized. As indicated on page 7 of the application, the objective is to determine the best strike prices (Q_i) that maximizes the expected value of a portfolio of put and call options given b_i call options and h_i put

options for an asset in the portfolio.

Contrasting equation (4) and equation (5) on pages 7 and 8 of the application, it can be seen that the invention recasts the Newsboy problem in inventory control theory into a financial portfolio problem where the objective is to calculate the best set of strike prices (Q_i) that maximizes expected value of the portfolio given that the portfolio should have (p_i-c_i) units of covered calls and (c-s) units of short position for the asset.

Table 1 on page 9 of the application shows an example of a Monte Carlo approach to calculate the inventory quantities that maximizes expected profit. Table 1 presents optimal inventory quantities for a sample size of 30. Figure 2 of the application provides a flow diagram for solving inventory control problems according to the described methodology.

Given that no prior art reference contemplates or suggests converting an inventory problem to a financial portfolio problem, as is required by claim 1or the system of claim 10, the claimed invention cannot be deemed to be anticipated by the prior art. Further, contrasting equations (2) and (3), and equations (4) and (5), discussed in more detail above, it is readily apparent that changing from the inventory control problem to a financial portfolio problem significantly changes the way in which inventory control is achieved. Therefore, the invention should be deemed new and unobvious over the prior art.

Furthermore, none of the patents cited by the Examiner show converting an inventory problem to a financial assets portfolio management problem.

In reference "Method and System for optimized Logistics Planning", (patent number 5,450,317), a multi-echelon inventory system is mentioned. The system has multiple warehouses, multiple customers. It has a method that uses "dynamic programming" to optimize the routing of supply shipments across the customers and warehouses. The invention does not determine optimal supply across various products so as to optimize risk and return. Furthermore, it does not convert the problem in to a portfolio optimization problem where financial optimization techniques can be used.

In reference "Method of and System for Generating Feasible, Profit maximizing Requisition Sets", (patent number 5,615,109), although a profit maximization objective is used to calculate optimal supply (requisition) across multiple products, "a basic financial system" mentioned in the invention is not a financial optimization technique. The invention in this reference simply refers to a "financial transaction system" from which data related to demand and other parameters can be obtained. In contrast, what has been claimed in the present application is a technique that is used to "CONVERT" the inventory problem to a financial portfolio management problem. Furthermore, linear and nonlinear programming techniques have limitations in doing portfolio optimization. Therefore, the invention also uses Monte Carlo simulation and stochastic optimization.

In reference "Predictive neural network means and method for selecting a portfolio of securities wherein each network has been trained using data relating to a corresponding security" (patent number 5,761,442), the context is portfolio optimization for financial securities. This area is rich. A lot of quantitative methods are being used in portfolio management. These techniques include stochastic optimization, non-linear programming, simulation, dynamic programming, etc. This invention uses neural networks as a technique. In contrast, the claimed invention has a technique to convert an inventory problem in the context of manufacturing, wholesale, or retail distribution business (not finance) to a portfolio optimization problem so that the above techniques and tools that are built based on these techniques (including neural networks) can be used to solve the inventory problem.

In reference "Computer Aided Risk Management in Multiple-Parameter Physical Systems", the invention is a method to solve multi-parameter, multi-constraint problems with random (or deterministic) parameters. The application context seems to be general. That is, one can use it to solve portfolio optimization problem in finance, or inventory optimization problem in manufacturing. As it does not constitute prior art to any other method or technique that can be used to solve these problems, so does it not constitute relevant prior art to the claimed method.

In reference "Inventory Management Strategy Evaluation System and Method" (patent number 5,963,919), the invention is s system that evaluates inventory strategies for different types of products based on their characteristics such as number of orders, lead times, weekly volumes, demand forecastability, cost and volume. The inventory strategies include"Make-to-Order", "Replenish-to-Order", "Warehouse replenishment EOQ","Fixed-rate supply", "Multi-input expert planning", Forecast Optimal". Once it recommends a strategy, it also calculates the optimal values of parameters that are needed to implement the strategy. Although the inventors make a mention of "inventory portfolio", this is not about "inventory portfolio optimization" that calculates optimal inventory quantities that optimize risk and return objectives of the company. They also do not have a technique that can convert their inventory problems to "financial portfolio optimization" problem.

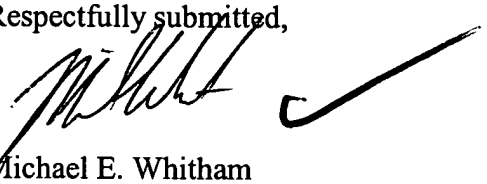
In reference "Method of and System for [Valving] Elements of A Business Enterprise", the invention has a method to measure the performance of various business elements of an enterprise. Predictive models are also used to estimate the correlation between the performances of these elements. The invention also has a method that can relate the performance of these elements to the value of the enterprise or equity price. This clearly does not relate to the claimed invention either as a prior art or technique that can be used in inventory management.

The present invention provides a step-by-step method to convert an inventory management problem to a portfolio management problem. Attached is an edited copy of Figure 2 of the present application. Step 202 discusses the conversion of the inventory management problem to the portfolio management problem. Once the inventory problem objectives are defined, this conversion can be done using the methodology described in the application. This basically means mapping the input data of the inventory problem to the input data of a corresponding financial portfolio optimization problem. Then, after this step, the problem is ready to be solved as a "portfolio optimization" problem. The patent specification discusses the methods that can be used to solve this problem in the invention (see step 206 in Figure 2). Once the

problem is solved the outputs are mapped back into outputs of the inventory optimization problem (see step 209 in Figure 2). Then, the results are reported to the user. Comments describing this are noted on the sides of the attached edited Figure 2 to explain this.

Reconsideration and allowance of claims 1-12 at an early date is requested. The Commissioner is authorized to charge attorney's deposit account 50-0510 (IBM Yorktown) for the fees for entry of the additional claims.

Respectfully submitted,



Michael E. Whitham
Reg. No. 32,635

30743
PATENT TRADEMARK OFFICE

APPENDIX 1

Clean copy of the amendments to the Specification

On page 3, beginning at line 16, and ending on page 4, at line 1, the paragraph now reads as follows:

A1

According to the invention, firms can set risk and return targets for inventory related capital investments and for operational management of their inventories. This allows a firm to put its inventory management within the framework of its quarterly, annual or long term financial objectives. As a result of this methodology, firms can position themselves more accurately *vis-a-vis* their financial goals. Because this will reduce uncertainty of achieving financial goals, it will positively impact the market value of a firm. This invention enables firms to use well established portfolio management tools that are developed in the finance industry in managing their inventory. Namely, they can calculate optimal inventory quantities that can achieve their revenue (profit) targets with an acceptable revenue (profit) risk. Alternatively, they can calculate optimal inventory policy that can minimize their revenue (profit) risk with an acceptable expected revenue (profit) target.

On page 8, lines1-2, please amend the paragraph as follows:

A2

This is equivalent to the value of a portfolio that consist of (p - c) units of long position on an asset, (p - c) units of short position on a call option of strike price Q, and (c - s) units of short position on a put option of strike price Q.

APPENDIX 2

Clean copy of the amended claims.

1. A method for managing inventory using a computer or computer system comprising the steps of:

converting an inventory problem to a financial portfolio problem;

generating a set of possible inventory estimates;

computing a value of possible inventory investments with said computer or computer system; and

selecting an inventory investment with a best value.

Flow Diagram for calculating optimal inventory for a cost minimization problem with service constraints

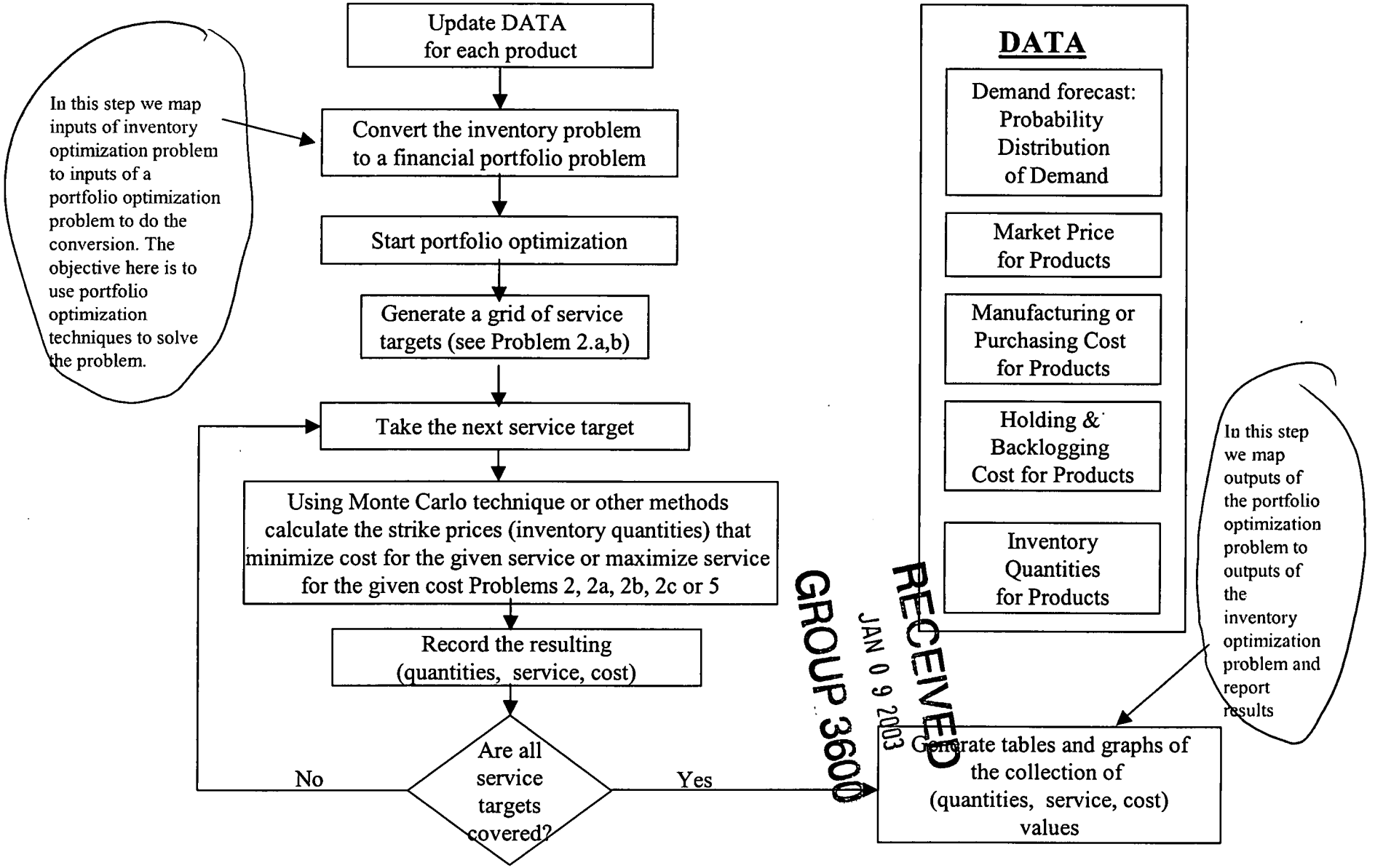


Figure 2